

656-0007US seq listing.ST25
SEQUENCE LISTING



#6

RECEIVED

JUN 26 2002

TECH CENTER 1600/2900

<110> Stiles, Michael E.
Vederas, John C.
van Belkum, Marius J.
Worobo, Randy W.
Worobo, Rodney J.
Greer, G. Gordon
McMullen, Lynn M.
Leisner, Jorgen J.
Poon, Alston
Franz, Charles M.A.P.

<120> NovelBacteriocins, Transport and Vector System and Method of Use

<130> 660.0005US

<140> 08/924,629

<141> 1997-09-05

<150> US 60/026,257

<151> 1996-09-05

<160> 80

<170> PatentIn version 3.1

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Ser Thr Leu Phe Leu Ile Ser Leu Ile Ala Ile Pro Ala Tyr Ala Leu
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656-0007US seq listing.ST25

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ggg	gca	aca	ttt	ttc	tca	aca	cca	caa	caa	gct	tct	gct	gct	gca	ccg	96
Gly	Ala	Thr	Phe	Phe	Ser	Thr	Pro	Gln	Gln	Ala	Ser	Ala	Ala	Ala	Pro	
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aaa	att	act	caa	aaa	caa	aaa	aat	tgt	ggt	aat	gga	caa	tta	ggt	gga	144
Lys	Ile	Thr	Gln	Lys	Gln	Lys	Asn	Cys	Val	Asn	Gly	Gln	Leu	Gly	Gly	
		35					40					45				

atg	ctt	gct	gga	gct	ttg	ggt	gga	cct	ggc	gga	ggt	gtg	tta	ggt	ggt	192
Met	Leu	Ala	Gly	Ala	Leu	Gly	Gly	Pro	Gly	Gly	Val	Val	Leu	Gly	Gly	
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ata	ggt	ggt	gca	ata	gca	gga	ggt	tgt	ttt	aat	ta					227
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1				5					10					15	

Gly	Ala	Thr	Phe	Phe	Ser	Thr	Pro	Gln	Gln	Ala	Ser	Ala	Ala	Ala	Pro
			20					25					30		

Lys	Ile	Thr	Gln	Lys	Gln	Lys	Asn	Cys	Val	Asn	Gly	Gln	Leu	Gly	Gly
		35					40					45			

Met	Leu	Ala	Gly	Ala	Leu	Gly	Gly	Pro	Gly	Gly	Val	Val	Leu	Gly	Gly
	50					55					60				

Ile	Gly	Gly	Ala	Ile	Ala	Gly	Gly	Cys	Phe	Asn					
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70

75

<210> 18

<211> 75

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<213> Divergicin structural gene

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 20 25 30

Lys Ile Thr Gln Lys Gln Lys Asn Cys Val Asn Gly Gln Leu Gly Gly
 35 40 45

Met Leu Ala Gly Ala Leu Gly Gly Pro Gly Gly Val Val Leu Gly Gly
 50 55 60

Ile Gly Gly Ala Ile Ala Gly Gly Cys Phe Asn
 65 70 75

<210> 19

<211> 170

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<213> divergicin immunity gene;

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<221> CDS

<222> (1)..(168)

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 1 5 10 15

48

ata att gtt ctt ctt gta ttt ttt tat aga agt tct ggt ttt tct tta
 Ile Ile Val Leu Leu Val Phe Phe Tyr Arg Ser Ser Gly Phe Ser Leu
 20 25 30

96

656-0007US seq listing.ST25

aaa aat tta gtt tta gga agt tta ttt tat ttg ata gca att ggt ctt 144
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35 40 45

ttt aat tat aaa aag ata aac aaa ta 170
Phe Asn Tyr Lys Lys Ile Asn Lys
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<210> 20

<211> 56

<212> PRT

<213> divergicin immunity gene;

<400> 20

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20 25 30

Lys Asn Leu Val Leu Gly Ser Leu Phe Tyr Leu Ile Ala Ile Gly Leu
35 40 45

Phe Asn Tyr Lys Lys Ile Asn Lys
50 55

<210> 21

<211> 56

<212> PRT

<213> Divergicin immunity gene

<400> 21

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1 5 10 15

Ile Ile Val Leu Leu Val Phe Phe Tyr Arg Ser Ser Gly Phe Ser Leu
20 25 30

Lys Asn Leu Val Leu Gly Ser Leu Phe Tyr Leu Ile Ala Ile Gly Leu
35 40 45

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<210> 22

<211> 124

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<213> Divergicin signal peptide;

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<221> sig_peptide

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<223>

<400> 22

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1				5				10					15			

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			20					25					30			

ttt	ctc	aac	acc	aca	aca	agc	ttc	tgc	t							124
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<210> 23

<211> 41

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<213> Divergicin signal peptide;

<400> 23

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656-0007US seq listing.ST25

Asn Phe Lys Arg Val Gly Tyr Ser Cys Leu Phe Ile Trp Gly Asn Ile
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Phe Leu Asn Thr Thr Thr Ser Phe Cys
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<210> 24

<211> 41

<212> PRT

<213> divergicin signal peptide

<400> 24

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Phe Leu Asn Thr Thr Thr Ser Phe Cys
35 40

<210> 25

<211> 675

<212> DNA

<213> Brochocin-C;

<400> 25

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656-0007US seq listing.ST25

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<211> 233

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<222> (1)..(231)

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<222> (1)..(54)

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<400> 26

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 Gly Gly Tyr Ser Ser Lys Asp Cys Leu Lys Asp Ile Gly Lys Gly Ile
 20 25 30

ggt gct ggt aca gta gct ggg gca gcc ggc ggt ggc cta gct gca gga 144
 Gly Ala Gly Thr Val Ala Gly Ala Ala Gly Gly Gly Leu Ala Ala Gly
 35 40 45

tta ggt gct atc cca gga gca ttc gtt gga gca cat ttt gga gta atc 192
 Leu Gly Ala Ile Pro Gly Ala Phe Val Gly Ala His Phe Gly Val Ile
 50 55 60

ggc gga tct gcc gca tgc att ggt gga tta tta ggt aac ta 233
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<210> 27

<211> 77

<212> PRT

<213> Brochocin-C peptide A;

<400> 27

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 1 5 10 15

Gly Gly Tyr Ser Ser Lys Asp Cys Leu Lys Asp Ile Gly Lys Gly Ile
 20 25 30

Gly Ala Gly Thr Val Ala Gly Ala Ala Gly Gly Gly Leu Ala Ala Gly
 35 40 45

Leu Gly Ala Ile Pro Gly Ala Phe Val Gly Ala His Phe Gly Val Ile
 50 55 60

Gly Gly Ser Ala Ala Cys Ile Gly Gly Leu Leu Gly Asn
 65 70 75

<210> 28

<211> 77

<212> PRT

<213> brochocin C, peptide A

<400> 28

Met His Lys Val Lys Lys Leu Asn Asn Gln Glu Leu Gln Gln Ile Val
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Gly Gly Tyr Ser Ser Lys Asp Cys Leu Lys Asp Ile Gly Lys Gly Ile
 20 25 30

Gly Ala Gly Thr Val Ala Gly Ala Ala Gly Gly Gly Leu Ala Ala Gly
 35 40 45

Leu Gly Ala Ile Pro Gly Ala Phe Val Gly Ala His Phe Gly Val Ile
 50 55 60

Gly Gly Ser Ala Ala Cys Ile Gly Gly Leu Leu Gly Asn
 65 70 75

<210> 29

<211> 182

<212> DNA

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<210> 31

<211> 60

<212> PRT

<213> Brochocin-C, peptide B

<400> 31

Met Lys Lys Glu Leu Leu Asn Lys Asn Glu Met Ser Arg Ile Ile Gly
 1 5 10 15

Gly Lys Ile Asn Trp Gly Asn Val Gly Gly Ser Cys Val Gly Gly Ala
 20 25 30

Val Ile Gly Gly Ala Leu Gly Gly Leu Gly Gly Ala Gly Gly Gly Cys
 35 40 45

Ile Thr Gly Ala Ile Gly Ser Ile Trp Asp Gln Trp
 50 55 60

<210> 32

<211> 161

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<213> Brochocin-C immunity peptide;

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<221> CDS

<222> (1)..(159)

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 1 5 10 15

48

tgt aac ttt tta ata aaa aaa gat gtg tct tca aaa aaa aaa tta ttt
 Cys Asn Phe Leu Ile Lys Lys Asp Val Ser Ser Lys Lys Lys Leu Phe
 Page 25

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656-0007US seq listing.ST25

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Ile Ile Phe Ser Asn			
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<400> 33
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 35 40 45
 Ile Ile Phe Ser Asn
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<210> 34
 <211> 53
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 <213> Brochocin-C immunity peptide

<400> 34
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 1 5 10 15
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 20 25 30
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Ile Ile Phe Ser Asn
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<210> 35

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<213> Enterocin 900 operon;

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656-0007US seq listing.ST25

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35 40 45

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<211> 71

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<400> 37

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20 25 30

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35 40 45

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Asn Val Tyr Ser Lys Cys Asn
65 70

<210> 38

<211> 71

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<213> Enterocin 900 peptide

<400> 38

Met Gln Asn Val Lys Glu Leu Ser Thr Lys Glu Met Lys Gln Ile Ile
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656-0007US seq listing.ST25

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 35 40 45

656-0007US seq listing.ST25

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50 55 60

Ser Gly Leu Gly Gly Thr Ile Lys Gln Lys Pro Glu Gly Ile Pro Ser
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20 25 30

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35 40 45

Pro Ser Gly Leu Gly Gly Thr Ile Lys Gln Lys Pro Glu Gly Ile Pro
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656-0007US seq listing.ST25

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 65 70 75

gat aat acg gat gtt aag aat gat aaa aaa ctt tct tta ctt ctt atg 404
 Asp Asn Thr Asp Val Lys Asn Asp Lys Lys Leu Ser Leu Leu Leu Met
 80 85 90 95

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 Arg Ile Gln Glu Thr Ser Ile Asn Gly Glu Leu Phe Tyr Asp Tyr Lys
 100 105 110

aaa gaa tta cag cca gct att agt atg tac tct att caa cat aac ttt 500
 Lys Glu Leu Gln Pro Ala Ile Ser Met Tyr Ser Ile Gln His Asn Phe
 115 120 125

cgg gtt cct gac gat cta gta aaa ctg tta gca tta gtt caa aca cct 548
 Arg Val Pro Asp Asp Leu Val Lys Leu Leu Ala Leu Val Gln Thr Pro
 130 135 140

aaa gct tgg tca ggg ttt taacttttagt tccagatgag ttaaaatcct 596
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 20 25 30

Leu Met Arg Ile Gln Glu Thr Ser Ile Asn Gly Glu Leu Phe Tyr Asp
 35 40 45

Tyr Lys Lys Glu Leu Gln Pro Ala Ile Ser Met Tyr Ser Ile Gln His
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Thr Pro Lys Ala Trp Ser Gly Phe
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Cys Trp Val Asn Lys Ala Glu Asn Lys Gln Ala Ile Thr Gly Ile Val
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Ile Gly Gly Trp Ala Ser Ser Leu Ala Gly Met Gly His
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 20 25 30

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 35 40 45

Tyr Lys Lys Glu Leu Gln Pro Ala Ile Ser Met Tyr Ser Ile Gln His
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5 10 15	
gga gta aat tat ggt aat ggt gtt tct tgc agt aaa aca aaa tgt tca	334
Gly Val Asn Tyr Gly Asn Gly Val Ser Cys Ser Lys Thr Lys Cys Ser	
20 25 30	
gtt aac tgg gga caa gcc ttt caa gaa aga tac aca gct gga att aac	382
Val Asn Trp Gly Gln Ala Phe Gln Glu Arg Tyr Thr Ala Gly Ile Asn	
35 40 45	
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Ser Phe Val Ser Gly Val Ala Ser Gly Ala Gly Ser Ile Gly Arg Arg	
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Pro Met Asp Ile Lys 70	
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Val Lys Ala Asn Glu Phe Leu Ser Lys Leu Val Val Gln Cys Ala Gly	
90 95 100	
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Lys Leu Thr Ala Ser Asn Ser Glu Asn Ser Tyr Ile Glu Val Ile Ser	
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Leu Leu Ser Arg Gly Ile Ser Ser Tyr Tyr Leu Ser His Lys Arg Ile	
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Ile Pro Ser Ser Met Leu Thr Ile Tyr Thr Gln Ile Gln Lys Asp Ile	
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tgatagacac aattaaggag cgacatttta tggaaaattt gaaatgggtat tcgggcggga	1005
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190 195 200	
ctt gaa gaa ttg gaa caa gca aat gct gct gtt cca att ata tta ggc	1153
Leu Glu Glu Leu Glu Gln Ala Asn Ala Ala Val Pro Ile Ile Leu Gly	
205 210 215 220	
cgt atg aac ata gat atc tct aca gca atc aga aaa gat ggt gtt act	1201
Arg Met Asn Ile Asp Ile Ser Thr Ala Ile Arg Lys Asp Gly Val Thr	
225 230 235	
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Leu Ser Glu Ile Gln Ser Lys Lys Leu Lys Glu Leu Ile Ser Ile Ser	
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Tyr Ile Lys Tyr Gly Tyr	
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ttgatctaatt tatttgaact tcagcattta tcttttgatt tattctttta gggaattgac	1837
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656-0007US seq listing.ST25

Ser Val Asn Trp Gly Gln Ala Phe Gln Glu Arg Tyr Thr Ala Gly Ile
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Arg Pro
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20 25 30

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35 40 45

Glu Val Ile Ser Leu Leu Ser Arg Gly Ile Ser Ser Tyr Tyr Leu Ser
50 55 60

His Lys Arg Ile Ile Pro Ser Ser Met Leu Thr Ile Tyr Thr Gln Ile
65 70 75 80

Gln Lys Asp Ile Lys Asn Gly Asn Ile Asp Thr Glu Lys Leu Arg Lys
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Tyr Glu Ile Ala Lys Gly Leu Met Ser Val Pro Tyr Ile Tyr Phe
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20 25 30

Gln Ala Asn Ala Ala Val Pro Ile Ile Leu Gly Arg Met Asn Ile Asp
35 40 45

Ile Ser Thr Ala Ile Arg Lys Asp Gly Val Thr Leu Ser Glu Ile Gln
50 55 60

Ser Lys Lys Leu Lys Glu Leu Ile Ser Ile Ser Tyr Ile Lys Tyr Gly
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Tyr

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20 25 30

Ser Val Asn Trp Gly Gln Ala Phe Gln Glu Arg Tyr Thr Ala Gly Ile
35 40 45

Asn Ser Phe Val Ser Gly Val Ala Ser Gly Ala Gly Ser Ile Gly Arg
50 55 60

Arg Pro
65

<210> 51

<211> 111

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<213> Carnobacterium B2 operon

<400> 51

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 1 5 10 15

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 20 25 30

Gln Cys Ala Gly Lys Leu Thr Ala Ser Asn Ser Glu Asn Ser Tyr Ile
 35 40 45

Glu Val Ile Ser Leu Leu Ser Arg Gly Ile Ser Ser Tyr Tyr Leu Ser
 50 55 60

His Lys Arg Ile Ile Pro Ser Ser Met Leu Thr Ile Tyr Thr Gln Ile
 65 70 75 80

Gln Lys Asp Ile Lys Asn Gly Asn Ile Asp Thr Glu Lys Leu Arg Lys
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Tyr Glu Ile Ala Lys Gly Leu Met Ser Val Pro Tyr Ile Tyr Phe
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Gln Ala Asn Ala Ala Val Pro Ile Ile Leu Gly Arg Met Asn Ile Asp
 35 40 45

Ile Ser Thr Ala Ile Arg Lys Asp Gly Val Thr Leu Ser Glu Ile Gln
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Ser Lys Lys Leu Lys Glu Leu Ile Ser Ile Ser Tyr Ile Lys Tyr Gly

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20 25 30

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35 40 45

Gly Val His Arg Leu Ala Asn Gly Gly Asn Gly Phe Trp
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<210> 69

<211> 36

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<400> 69

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Gly Asn Gly Phe
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656-0007US seq listing.ST25

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<213> Carnobacteriocin B2

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20 25 30

Ser Val Asn Trp Gly Gln Ala Phe Gln Glu Arg Tyr Thr Ala Gly Ile
35 40 45

Asn Ser Phe Val Ser Gly Val Ala Ser Gly Ala Gly Ser Ile Gly Arg
50 55 60

Arg Pro
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<210> 73

<211> 61

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<213> Carnobacteriocin BM1

<400> 73

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1 5 10 15

Gly Gly Ala Ile Ser Tyr Gly Asn Gly Val Tyr Cys Asn Lys Glu Lys
20 25 30

Cys Trp Val Asn Lys Ala Glu Asn Lys Gln Ala Ile Thr Gly Ile Val
Page 49

35

Ile Gly Gly Trp Ala Ser Ser Leu Ala Gly Met Gly His
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<210> 74

<211> 59

<212> PRT

<213> Sakacin A

<400> 74

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1 5 10 15

Gly Gly Ala Arg Ser Tyr Gly Asn Gly Val Tyr Cys Asn Asn Lys Lys
20 25 30

Cys Trp Val Asn Arg Gly Glu Ala Thr Gln Ser Ile Ile Gly Gly Met
35 40 45

Ile Ser Gly Trp Ala Ser Gly Leu Ala Gly Met
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<211> 18

<212> PRT

<213> Carnobacteriocin A

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656-0007US seq listing.ST25

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<212> PRT

<213> Lactacin F

<400> 77

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Gly Gly

<210> 78

<211> 21

<212> PRT

<213> Lactococcin B

<400> 78

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Glu Ala Asn Gly Gly
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<210> 79

<211> 21

<212> PRT

<213> Lactococcin A

<400> 79

Met Lys Asn Gln Leu Asn Phe Asn Ile Leu Ser Glu Glu Asp Leu Ser
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Glu Ala Asn Gly Gly
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<210> 80

<211> 21

656-0007US seq listing.ST25

<212> PRT

<213> Lactococcin M

<400> 80

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Gly Ile Asn Gly Gly
20